CDM

Fall Creek and Pleasant Run TMDL

Technical Memorandum No. 1B

To: *Staci Goodwin, Jennifer Hutchison/IDEM*

From: *Gary Mercer, Heather Cheslek - CDM*

Date: *January 15, 2003*

Subject: *Fall Creek and Pleasant Run TMDL*
Summary of Instream Data for E. coli Bacteria

CDM has reviewed the available data from the City of Indianapolis Office of Environmental Services (OES), the Marion County Health Department (MCHD), and the Indiana Department of Environmental Management (IDEM) pertaining to Fall Creek, Pleasant Run and Bean Creek within Marion County for use in performing a Total Maximum Daily Load (TMDL) for *E. coli* bacteria. IDEM has approved OES and MCHD data. Indiana Administrative Code (327 IAC 2-1-6) states the following for *E. coli* bacteria water quality standards,

> *E. coli* bacteria, using membrane filter (MF) count, shall not exceed one hundred twenty-five (125) per one hundred (100) milliliters as a geometric mean based on not less than five (5) samples equally spaced over a thirty (30) day period nor exceed two hundred thirty-five (235) per one hundred (100) milliliters in any one (1) sample in a thirty (30) day period.

Hence, two requirements must be met for compliance for a 30-day period:

- Geometric mean of the data must be less than **125** counts per 100 ml and
- Maximum value be less than **235** counts per 100 ml

For this data review and assessment for compliance with water quality standards, all data collected by OES, MCHD, and IDEM is considered to have received quality assurance checks by the respective collecting entity (OES, MCHD, or IDEM). Additionally data checking was not performed for this analysis. Data flagged by the collecting entity as questionable is presented in the attached graphs and noted as being questionable, but not used for determination of compliance. Therefore, data checking was not performed by CDM for this analysis. That is, where data is collected by more than one entity at a particular monitoring locations, the data sets are combined for the assessment.

Data plots of all stations and compliance plots for Fall Creek, Pleasant Run and Bean Creek are attached. The following paragraphs summarize the findings from each source and the overall percent compliance with Indiana water quality standards for data from January 2000 to December 2001.

E. coli Bacteria

The City of Indianapolis OES, MCHD, and IDEM have collected samples and performed *E. coli* bacteria analysis at twelve locations on Fall Creek, eight locations on Pleasant Run and four locations on Bean Creek (a tributary to Pleasant Run). Samples collected by OES and IDEM were collected and analyzed on a monthly basis present while samples collected by the MCHD were collected and analyzed 5 times per month.

A comparison of the available data was made to both the maximum monthly *E. coli* standard of 235 colonies per 100 milliliters and the monthly geometric mean standard of 125 colonies per 100 milliliters for the recreational season of April to October. Overall findings are:

- More than 90 percent of the sampling stations on Fall Creek, Pleasant Run and Bean Creek have **less than 50 percent compliance with the maximum *E. coli* standard**
- All of the sampling stations with sufficient data (5 samples in 30 days) have **less than 30 percent compliance with the geometric mean *E. coli* standard.**

Fall Creek

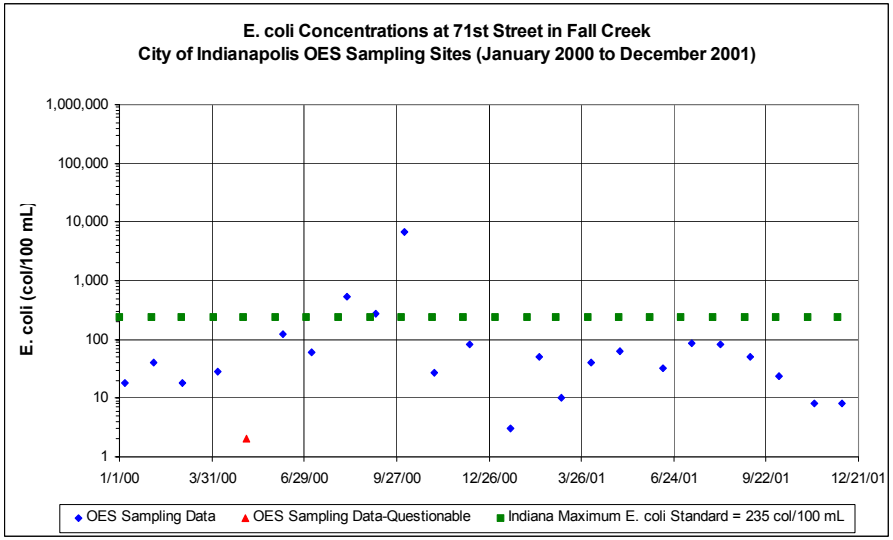
E. coli bacteria exceedences occur over all stations on Fall Creek. (See attached data plots and compliance plots for Fall Creek.) The upstream sampling station at 71st Street has a high percent compliance with the bacteria standard; nearly 78% of the time the instream value is less than the maximum limit of 235. For the other stations on Fall Creek, there is a very low % compliance with the bacteria standard, most below 50% compliance with the maximum limit and less than 25% for the geometric mean standard.

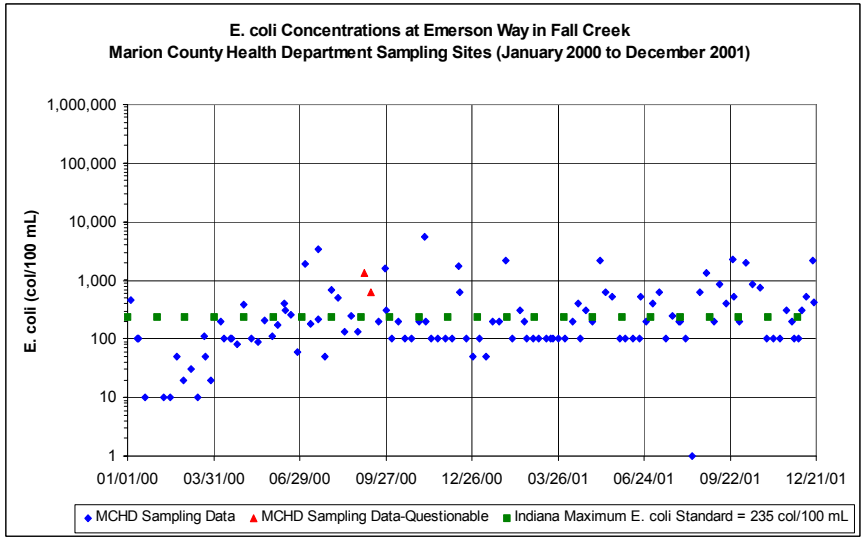
Pleasant Run

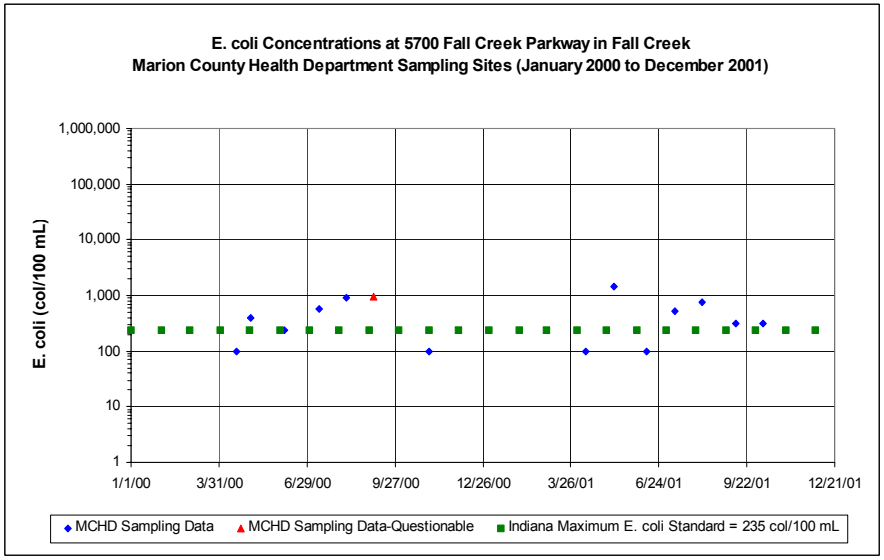
Along Pleasant Run from 21st Street to the confluence with the White River, *E. coli* bacteria problems are apparent. There is a very low % compliance with the bacteria standard, all stations have less than 50% compliance with the maximum limit and 0% for the geometric mean standard. Also, a similar number of exceedences occur upstream of the CSO area as do occur within the CSO area.

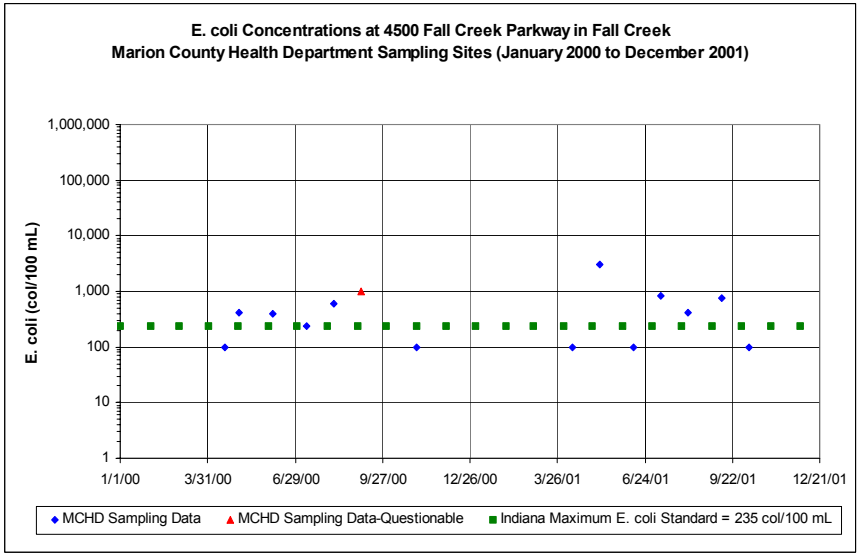
cc: Lara Daly – City
John Chavez - City
Robin Garibay, Advent Group
Mark Burgess, CDM
Srini Vallabhaneni, CDM

Fall Creek E. coli Data Plots

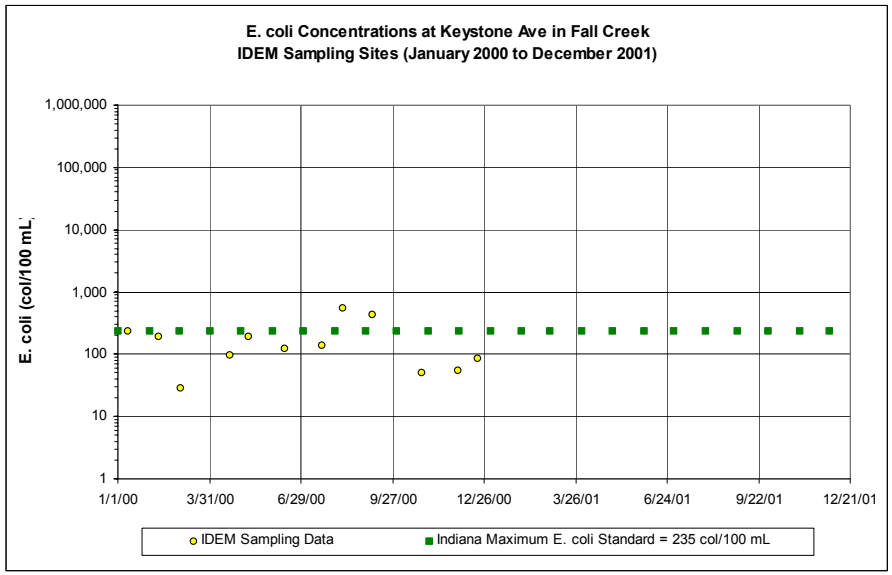


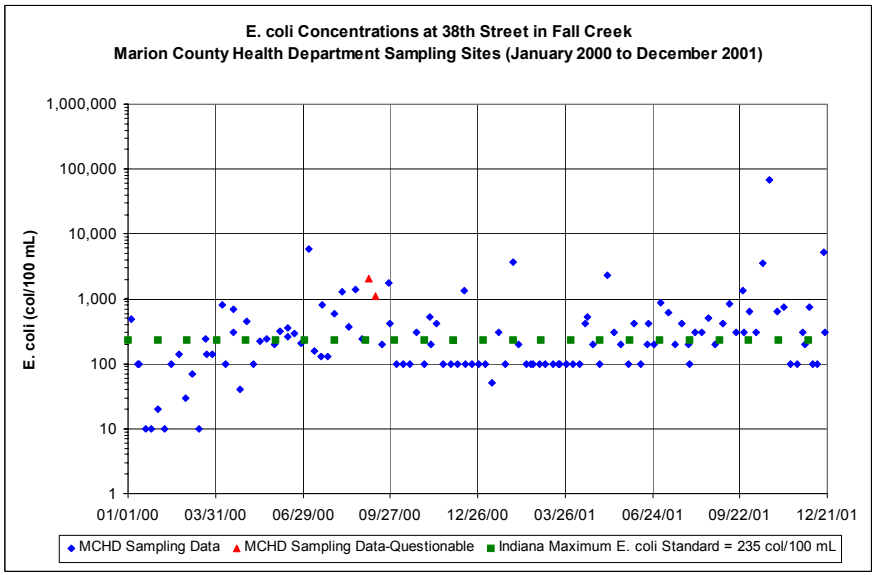


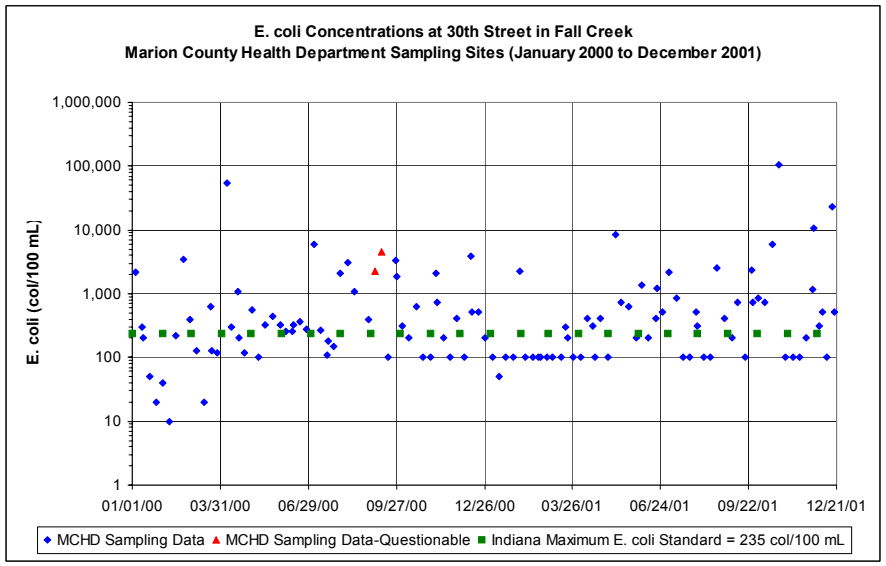


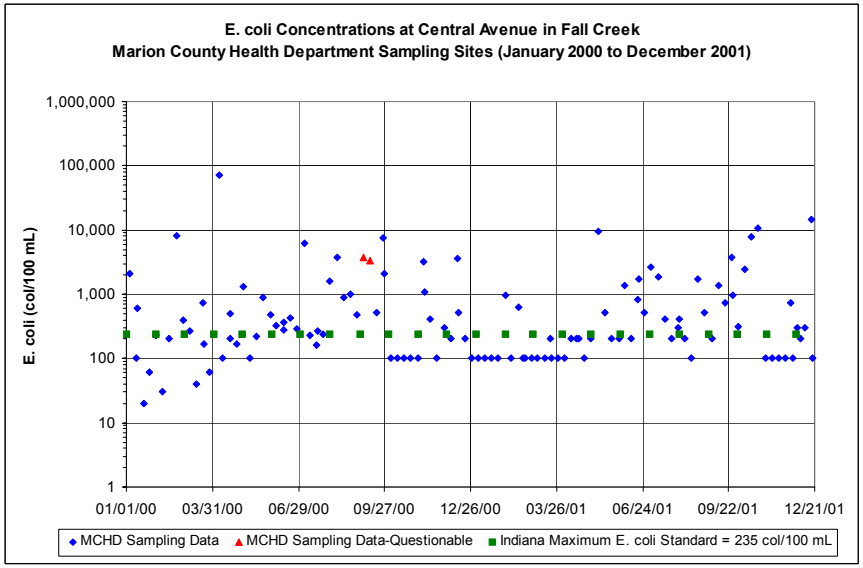


Fall Creek E. coli Data Plots (continued)

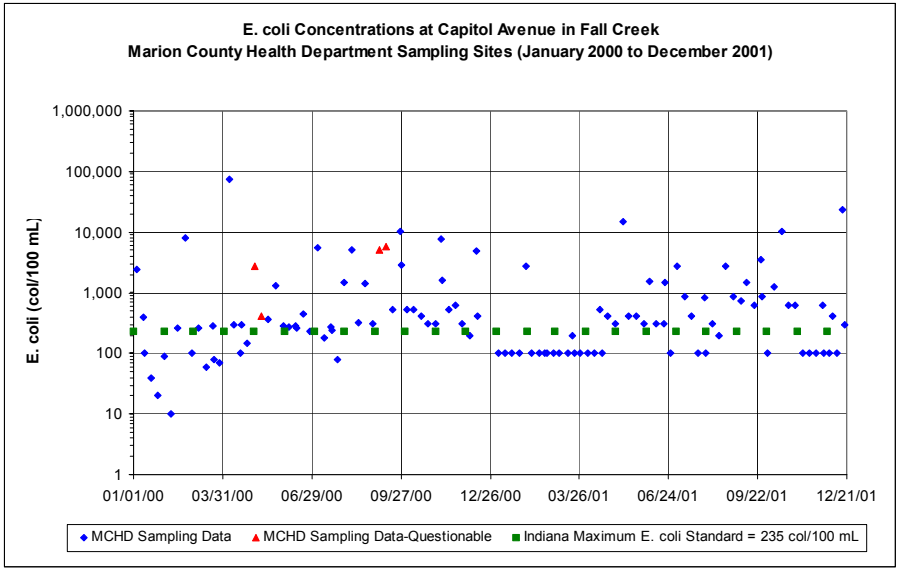


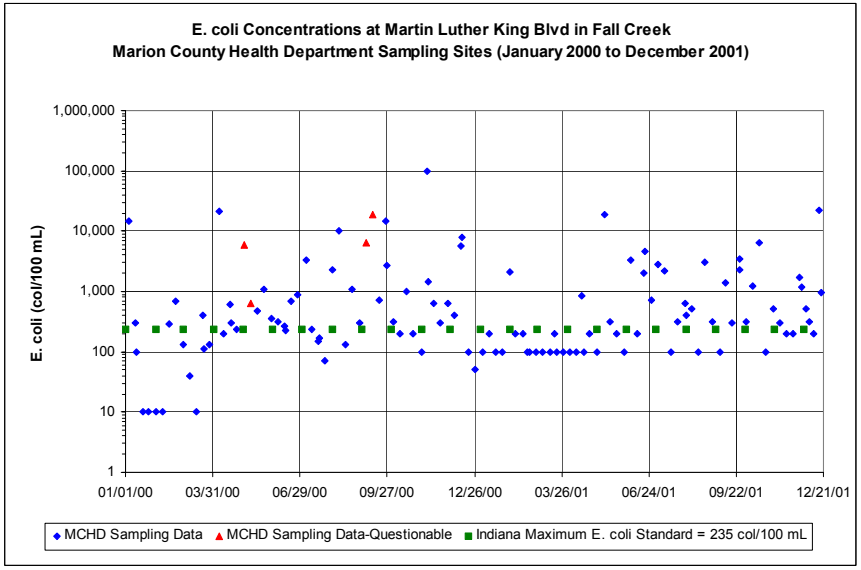


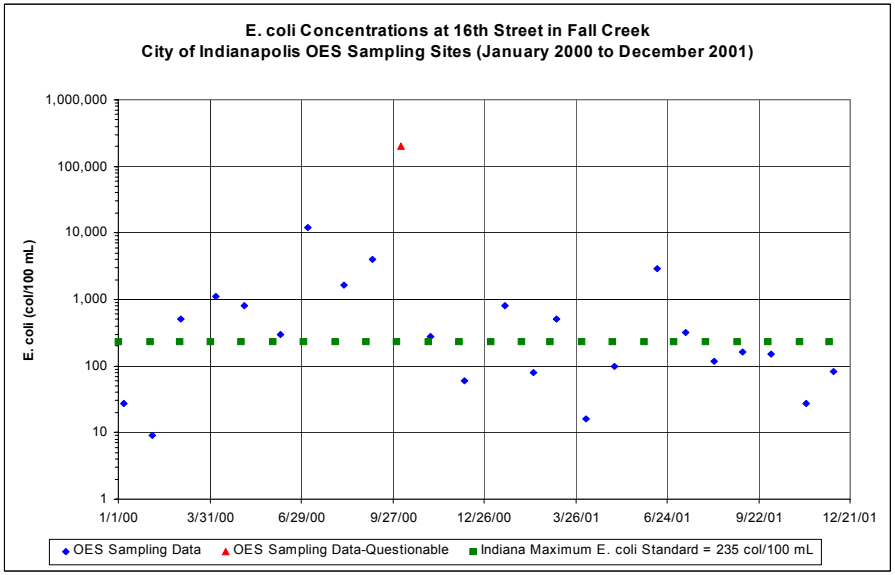


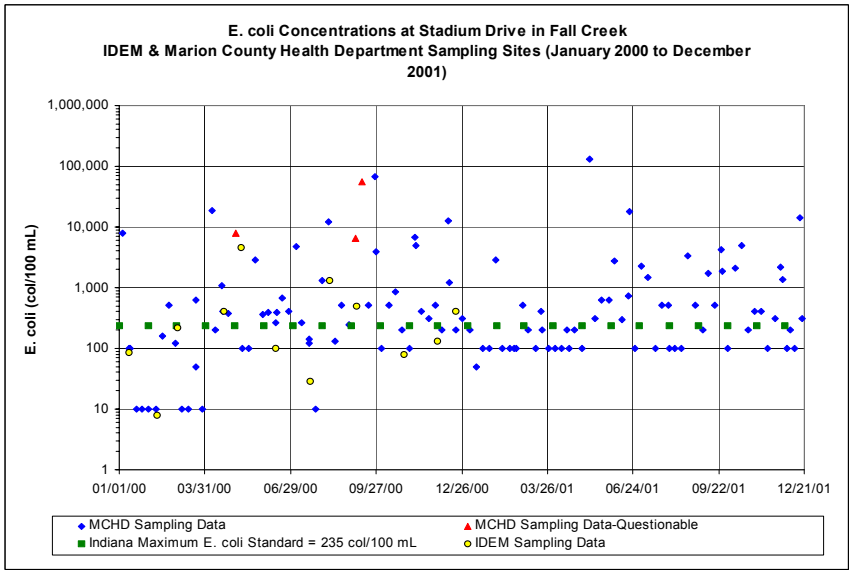


Fall Creek E. coli Data Plots (continued)

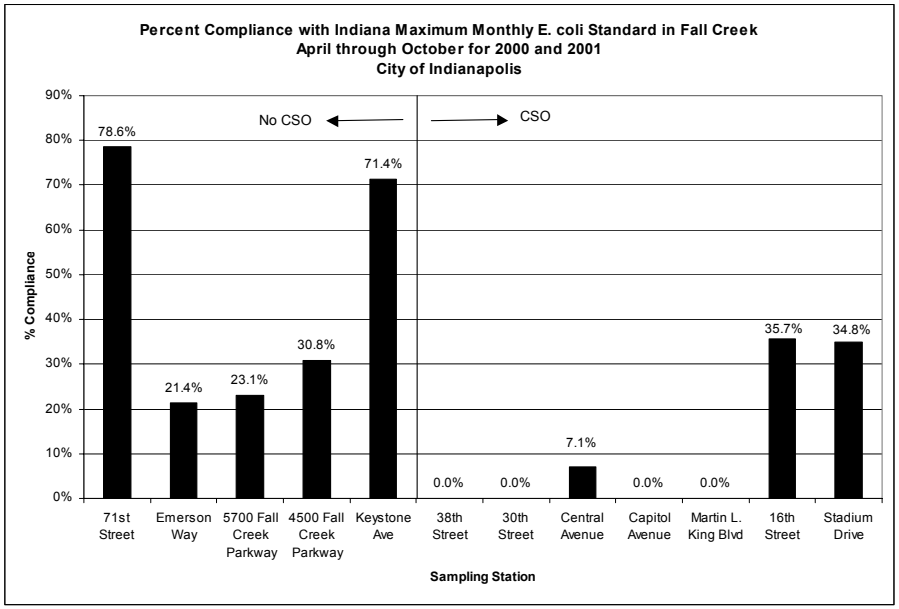


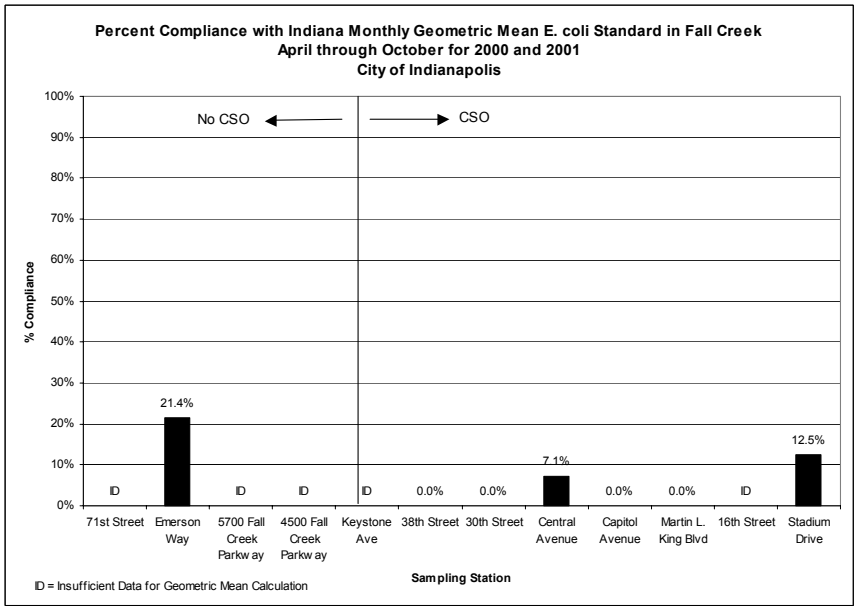




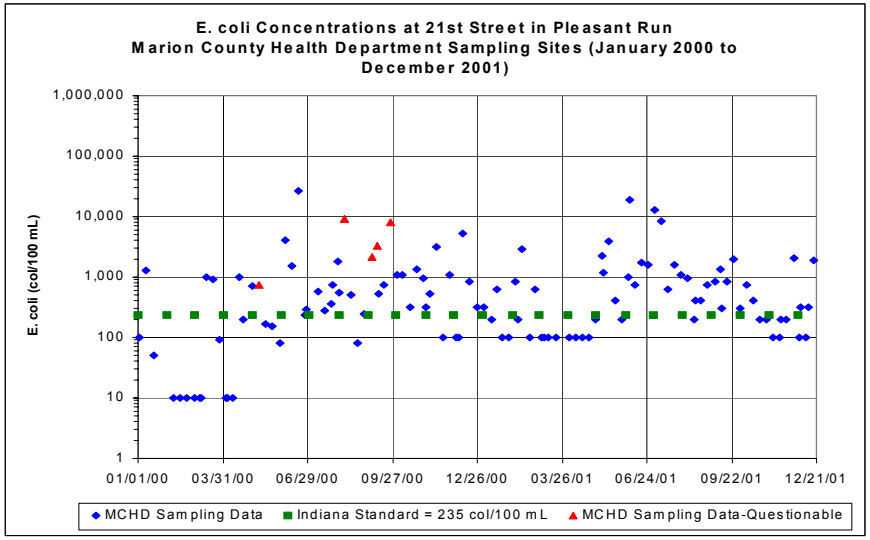


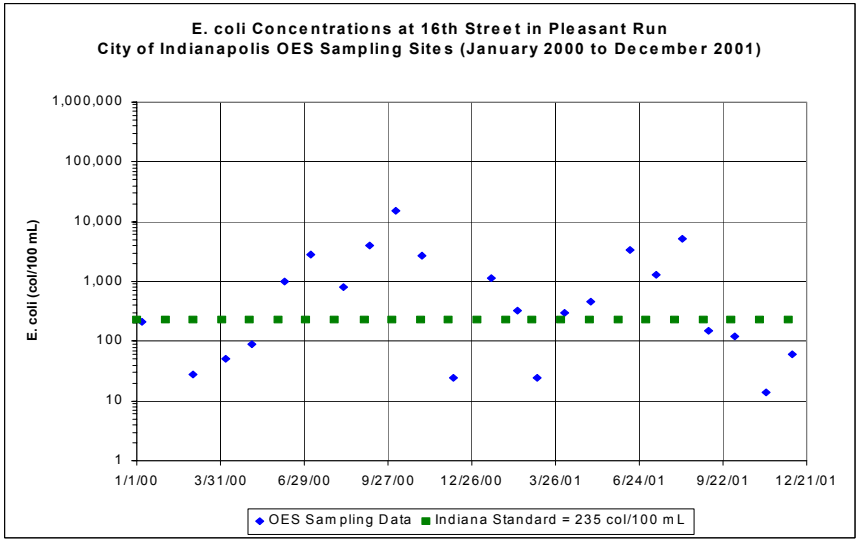
Fall Creek E. coli Data Plots (continued)

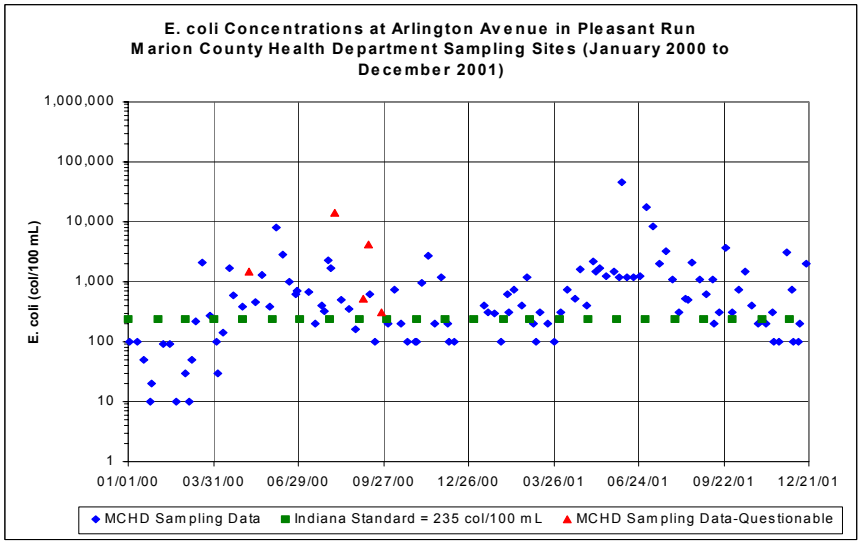


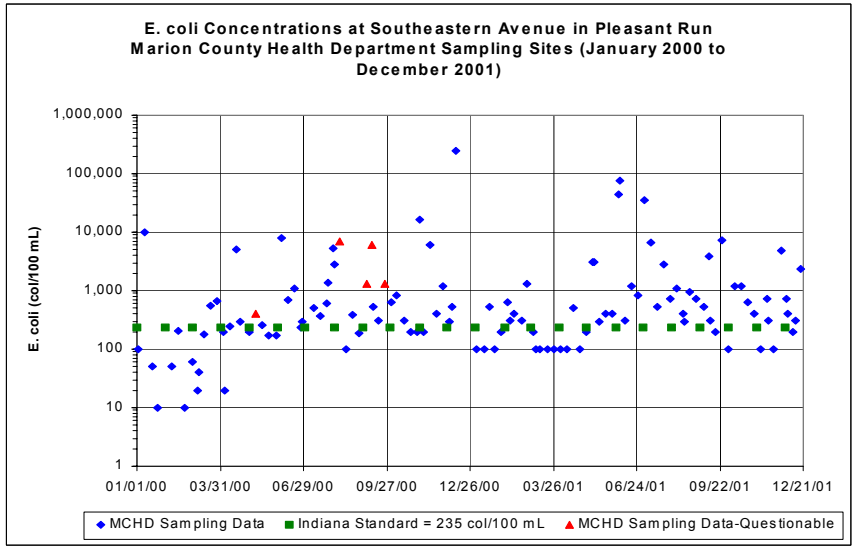


Pleasant Run E. coli Data Plots

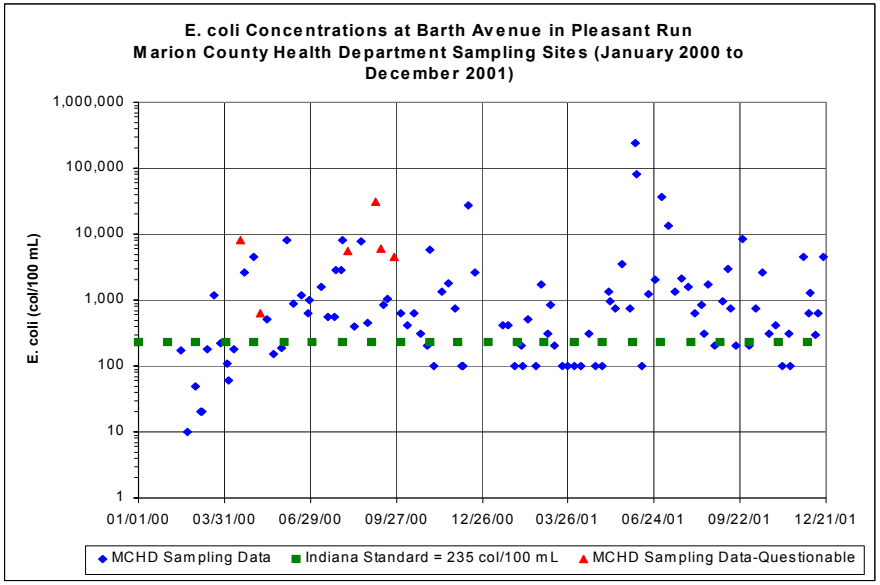


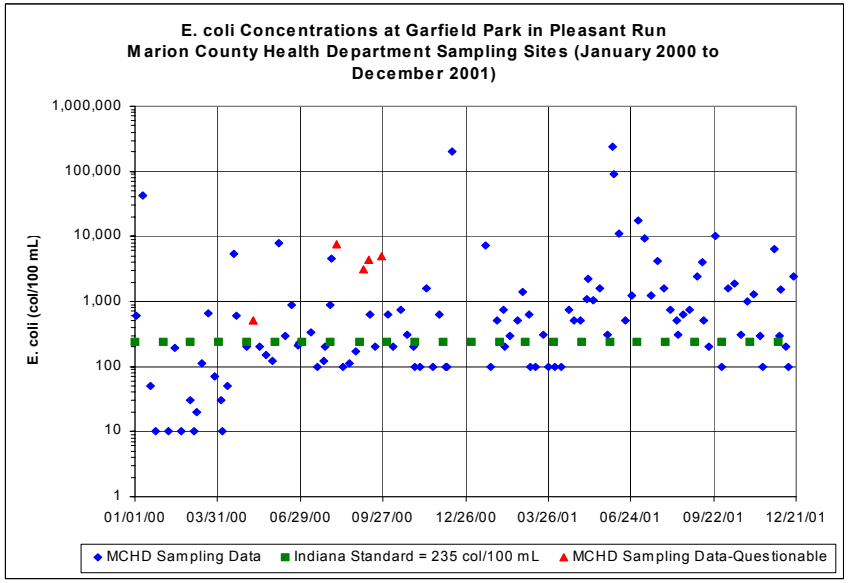


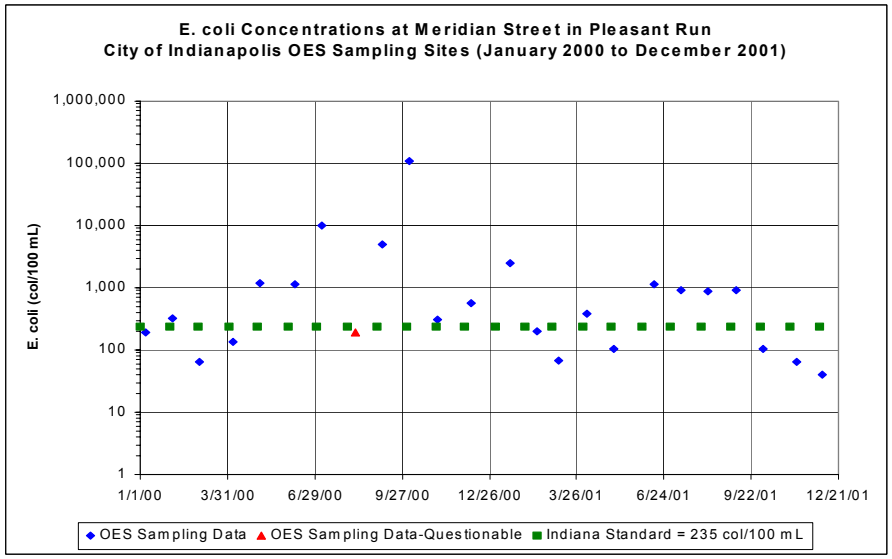


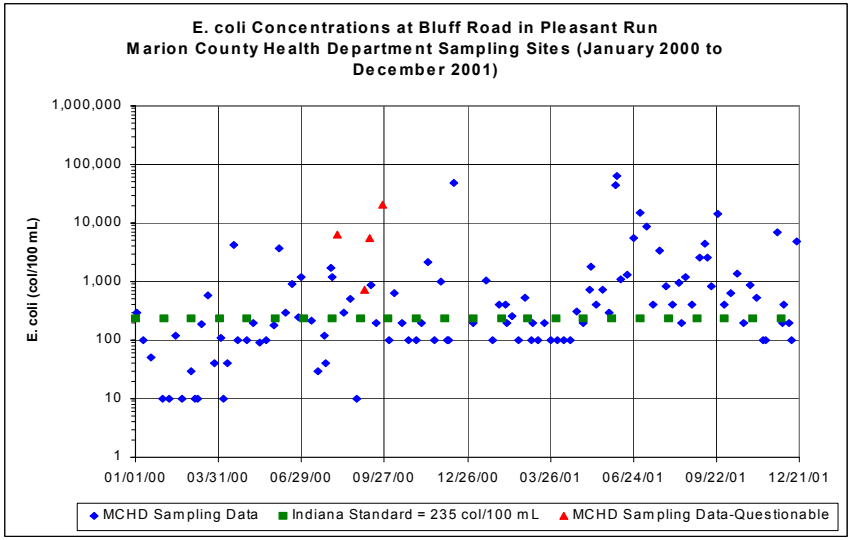


Pleasant Run E. coli Data Plots (continued)









Pleasant Run E. coli Data Plots (continued)